

Final Report

Ecological Assessment for 294 McLennan Street, Mooroopna, Victoria

Prepared for

Greater Shepparton City Council

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Project number	15976
Project manager	Jared McGuiness (Senior Botanist)
Report reviewer	Andrew Hill (Director/Principal Ecologist); Jared McGuiness (Senior Botanist)
Other EHP staff	Linda Parker (Consultant Ecologist); Claire Mackay (Field Ecologist); Sara Petrovic (Zoologist); Richard Moore (Field Ecologist).
Mapping	Sanda Pannipitiya (GIS Officer); Petra Sorensen (GIS Analyst)
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EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners Pty Ltd was commissioned by Greater Shepparton City Council to undertake an Ecological Assessment for 294 McLennan Street, Mooroopna, Victoria. The purpose of this assessment was to identify the extent and type of native vegetation present within the study area. This report presents the results of the assessment and discusses the potential ecological and legislative implications associated with the proposed action. This Ecological Assessment will be used to inform the preparation of a planning scheme amendment seeking to rezone the land from Farming Zone to General Residential Zone.

Methods

A field assessment was undertaken on 24 February 2022 to obtain information on flora and fauna values within the study area. The study area was walked, with all commonly observed vascular flora and fauna species recorded, significant records mapped, and the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DELWP pre-1750 and extant EVC mapping (DELWP 2022a) and their published descriptions (DELWP 2022c).

Results

Native Vegetation

One patch of native vegetation (0.079 hectares) representative of Tall Marsh (EVC 821) and eight scattered native trees, including one large tree, were recorded within the study area. The remainder of the study area comprised introduced and planted vegetation, and does not support remnant native vegetation patches.

Flora

No national or State significant flora species were recorded during the site assessment and based on the modified nature of the study area, landscape context and the proximity of previous records, significant flora species are considered unlikely to occur within the study area due to the and high levels of disturbance and absence of suitable habitat. One flora species listed as protected under the FFG Act, Woolly New Holland Daisy *Vittadinia gracilis*, was recorded within the north of the study area

Fauna

Most of the study area consisted of paddocks, which contained improved exotic pastures, likely to be used as a foraging resource by common generalist bird species that are tolerant of modified open areas. Based on the modified nature of the study area, landscape context and the proximity of previous records, significant fauna species are considered highly unlikely to rely on habitat within the study area for foraging or breeding purposes due to the lack of suitable and/or important habitat features. Mobile bird species and birds of prey are likely to occasionally fly-over the study area and may occasionally forage there.

Communities

Native vegetation within the study area did not meet the condition thresholds that define any national or State-significant communities due to the absence of key indicator species, the low diversity of native flora and high cover of exotic vegetation.

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SUMMARY OF CLAUSE 52.17 APPLICATION REQUIREMENTS

Table S1. Application requirements for a permit to remove native vegetation (Victoria Planning Provisions Clause 52.17; DELWP 2017)

No.	Application Requirement	Response
Application requirements under the Intermediate Assessment Pathway		
1	Information about the native vegetation to be removed, including: <ul style="list-style-type: none"> The assessment pathway and reason for the assessment pathway; A description of the native vegetation to be removed; Maps showing the native vegetation and property in context; and The offset requirement that will apply if the native vegetation is approved to be removed. 	Refer to Section 3.1, Section 3.3 and Appendix 3 (NVR Report).
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Refer to Section 1.2 and Figure 1
3	Recent dated photographs of the native vegetation to be removed.	Refer to Section 3.1
4	Details of any other native vegetation that was permitted to be removed on the same property with the same ownership as the native vegetation to be removed, where the removal occurred in the five-year period before the application to remove native vegetation is lodged.	No removal of native vegetation has been removed by the proponent within the property within the past five years
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Refer to Section 5.1
6	A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the <i>Conservation, Forests and Lands Act 1987</i> that applies to the native vegetation to be removed.	Not applicable
7	Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary. This statement must have regard to other available bushfire risk mitigation measures. This statement is not required when the creation of defensible space is in conjunction with an application under the Bushfire Management Overlay.	Not applicable as the vegetation clearance is not for defensible space
8	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations at decision guideline 8.	Not applicable as the application responds to Clause 52.17
9	An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines.	Refer to Section 5.3

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Greater Shepparton City Council to undertake an Ecological Assessment within part of 294 McLennan Street, Mooroopna, Victoria.

We understand that Greater Shepparton City Council had acquired the land to facilitate the construction of the ultimate stormwater drainage solution envisaged for the Mooroopna West Growth Corridor. Since then, the existing floodway traversing through the land has been formalised and a retardation basin constructed on the land to serve the residential development to the east. This report will be used to inform the preparation of a planning scheme amendment seeking to rezone the study area (Figure 1) from Farming Zone to General Residential Zone.

The purpose of this assessment was to identify the extent and type of native vegetation present within the study area. This report presents the results of the assessment and discusses the potential ecological and legislative implications associated with the proposed action. This Ecological Assessment will be used to inform the preparation of a planning scheme amendment seeking to rezone the land from Farming Zone to General Residential Zone.

1.2 Study Area

The study area is located within part of 294 McLennan Street, Mooroopna and is approximately 185 kilometres north of Melbourne's CBD and immediately west of the township of Mooroopna (Figure 1). The study area covers approximately four hectares and is bound by cleared agricultural paddocks in all directions, with the Mooroopna township located 200 metres east of the site.

The study area was acquired by Council to facilitate the construction of the ultimate stormwater drainage solution envisaged for the Mooroopna West Growth Corridor. Since then, the existing floodway traversing through the land has been formalised and a retardation basin constructed on the land to serve the residential development to the east. The study area is generally flat, with no ridges, crests, or waterways within or immediately adjacent to the site.

According to the Department of Environment, Land, Water and Planning (DELWP) NatureKit Map (DELWP 2022a), the study area is located within the Victorian Riverina bioregion, Goulburn Broken Catchment Management Authority (CMA) and Greater Shepparton City Council.

2 METHODS

2.1 Desktop Assessment

Relevant literature, online-resources and databases were reviewed to provide an assessment of flora and fauna values associated with the study area. The following information sources were reviewed:

- The DELWP NatureKit Map (DELWP 2022a) and Native Vegetation Information Management (NVIM) Tool (DELWP 2022b) for:
 - Modelled data for location risk, native vegetation patches, scattered trees and habitat for rare or threatened species; and,
 - The extent of historic and current Ecological Vegetation Classes (EVCs).
- EVC benchmarks (DELWP 2022c) for descriptions of EVCs within the relevant bioregion;
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DELWP 2022e);
- The Illustrated Flora Information System of Victoria (IFLISV) (Gullan 2017) and Atlas of Living Australia (ALA) (ALA 2022) for assistance with the distribution and identification of flora species;
- The Commonwealth Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEE 2022a).
- Relevant listings under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act), including the latest Threatened (DELWP 2022e) and Protected (DELWP 2019) Lists;
- The online VicPlan Map (DELWP 2022d) to ascertain current zoning and environmental overlays in the study area;
- Aerial photography of the study area; and
- Previous ecological assessments relevant to the study area.

2.2 Field Assessment

A field assessment was undertaken on 24 February 2022 to obtain information on flora and fauna values within the study area. The study area was walked, with all commonly observed vascular flora and fauna species recorded, significant records mapped, and the overall condition of vegetation and habitats noted. Ecological Vegetation Classes (EVCs) were determined with reference to DELWP pre-1750 and extant EVC mapping (DELWP 2022a) and their published descriptions (DELWP 2022c).

Where native vegetation was identified a habitat hectare assessment was undertaken following methodology described in the Vegetation Quality Assessment Manual (Department of Sustainability and Environment (DSE) 2004).

2.3 Removal, Destruction or Lopping of Native Vegetation (the Guidelines)

Under the *Planning and Environment Act 1987*, Clause 52.17 of the Greater Shepparton Planning Scheme requires a planning permit to remove, destroy or lop native vegetation. The assessment process for the clearing of vegetation follows the ‘*Guidelines for the removal, destruction or lopping of native vegetation*’ (the Guidelines) (DELWP 2017). The ‘*Assessor’s handbook: Applications to remove, destroy or lop native vegetation*’ (Assessor’s handbook) (DELWP 2018) provides clarification regarding the application of the Guidelines (DELWP 2017).

2.3.1 Assessment Pathway

The Guidelines manage the impacts on biodiversity from native vegetation removal using an assessment-based approach. Two factors – extent risk and location category – are used to determine the risk associated with an application for a permit to remove native vegetation. The location category (1, 2 or 3) has been determined for all areas in Victoria and is available on DELWP’s NVIM Tool (DELWP 2022b). Determination of assessment pathway is summarised in Table 1.

Table 1. Assessment pathways for applications to remove, destroy or lop native vegetation (DELWP 2017).

Extent		Location		
		1	2	3
Native Vegetation	Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
	Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
	0.5 hectares or more	Detailed	Detailed	Detailed

Notes: For the purpose of determining the assessment pathway of an application to remove native vegetation the extent includes any other native vegetation that was permitted to be removed on the same contiguous parcel of land with the same ownership as the native vegetation to be removed, where the removal occurred in the five-year period before an application to remove native vegetation is lodged.

2.3.2 Vegetation Assessment

Native vegetation (as defined in Table 2) is assessed using two key parameters: extent (in hectares) and condition. For the purposes of this assessment, both condition and extent were determined as part of the habitat hectare assessment.

Table 2. Determination of a patch of native vegetation (DELWP 2017).

Category	Definition	Extent	Condition
Patch of native vegetation	<p>An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native;</p> <p>OR</p> <p>An area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy;</p> <p>OR</p> <p>any mapped wetland included in the <i>Current Wetlands map</i>, available in DELWP systems and tools.</p>	<p>Measured in hectares.</p> <p>Based on hectare area of the native patch.</p>	<p>Vegetation Quality Assessment Manual (DSE 2004).</p> <p>Modelled condition for <i>Current Wetlands</i>.</p>
Scattered tree	<p>A native canopy tree that does not form part of a native patch.</p>	<p>Measured in hectares.</p> <p>Each Large scattered tree is assigned an extent of 0.071 hectares (15m radius).</p> <p>Each Small scattered tree is assigned a default extent of 0.031 hectares (10 metre radius)</p>	<p>Scattered trees are assigned a default condition score of 0.2 (outside a patch).</p>

Notes: Native vegetation is defined in the Victoria Planning Provisions as ‘plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses’.

2.3.3 Impact Avoidance and Minimisation

All applications to remove native vegetation must demonstrate the three-step approach of avoid, minimise, and offset. This is a precautionary approach that aims to ensure that the removal of native vegetation is restricted to what is reasonably necessary, and that biodiversity is appropriately compensated for any native vegetation removal that is approved.

2.3.4 Offsets

Biodiversity offsets are required to compensate for the permitted removal of native vegetation. Offset obligations and offset site criteria are determined in accordance with the Guidelines (DELWP 2017) and are divided into two categories, being General Habitat Units and Species Habitat Units.

The offset requirements for native vegetation removal are calculated by DELWP and presented in a Native Vegetation Removal (NVR) Report, which are based on the vegetation condition scores determined during the biodiversity assessment.

2.4 Assessment Qualifications and Limitations

This report has been written based on the quality and extent of the ecological values and habitat considered to be present or absent at the time of the desktop and field assessment being undertaken.

The 'snapshot' nature of a standard biodiversity assessment meant that migratory, transitory, or uncommon fauna species may have been absent from typically occupied habitats at the time of the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent.

A comprehensive list of all terrestrial flora and fauna present within the study area was not undertaken as this was not the objective of the assessment. Rather a list of commonly observed species was recorded to inform the habitat hectare assessment and assist in determining the broader biodiversity values present within the study area.

Ecological values identified within the study area were recorded using a hand-held GPS or tablet with an accuracy of +/-5 metres. This level of accuracy is considered to provide an accurate assessment of the ecological values present within the study area; however, this data should not be used for detailed surveying purposes.

The terrestrial flora and fauna data collected during the field assessment and information obtained from relevant desktop sources is considered to adequately inform an accurate assessment of the ecological values present within the study area.

3 RESULTS

3.1 Vegetation Condition

One patch of native vegetation (0.079 hectares) representative of Tall Marsh (EVC 821) and eight scattered native trees, including one large tree, were recorded within the study area. The remainder of the study area comprised introduced and planted vegetation, and does not support remnant native vegetation patches. The study area is representative of many areas within the Victorian Riverina Bioregion, that are dominated by large areas of improved pastures, with scattered patches of remnant vegetation and/or regrowth from past clearing, and scattered native trees.

Specific details relating to the observed Tall Marsh EVC, and the scattered trees are detailed below.

A list of the 48 flora species recorded during the field assessment are provided in Appendix 1.1. This includes 35 indigenous species and 13 weed species (Appendix 1.1).

The results of the habitat hectare assessment for the Tall Marsh EVC are provided in Appendix 1.2.

3.1.1 Patches of Native Vegetation

Native vegetation in the study area is representative of one EVC: Tall Marsh (EVC 821). The patch of Tall Marsh is located within the drainage line in the north of the study area and extends further to the west along the drainage line (Figure 2). The presence of this EVC is generally consistent with the wetter modelled pre-1750s native vegetation mapping (DELWP 2022c) of the local area, which is Drainage-line Aggregate (EVC 168), but Plains Woodland (EVC 803) is the most extensive mapped modelled EVC in the local area. Due to the presence of Cumbungi *Typha* spp. the vegetation in the drainage-line has been classified as the related Tall Marsh EVC.

The scattered trees and native understorey of the other parts of the study area would have once formed part of the Plains Woodland vegetation community, however the cover of weeds means that this area no longer is considered a native patch.

Tall Marsh

Tall Marsh is described as wetland dominated by tall emergent graminoids (rushes, sedges, reeds), typically in thick species-poor swards. This EVC typically occupies wetlands usually associated with anabranch creeks, where soils are almost permanently moist. Dominant species are tolerant of relatively deep and sustained inundation, but not total immersion for any sustained period. (DELWP 2022c).

Tall Marsh EVC has a Bioregional Conservation Status (BCS) of depleted in the Victorian Riverina bioregion (DELWP 2022a).

Tall Marsh within the study area was confined to the drainage line that runs along the northern boundary of the study area. Within the study area the patch covers 0.079 hectares. The vegetation community contained native and introduced grasses and herbs and aquatic species including Wallaby grasses, Cumbungi, Slender Dock *Rumex brownii*, Nutsedge *Cyperus* sp., Common Spike-sedge *Eleocharus acuta*, Crassula *Crassula* sp., Fen Sedge *Carex gaudichaudiana*, Common Water-plantain *Alisma plantago-aquatica* and *Azolla rubra* (Plate 1,

Plate 2). Species native to Tall Marsh and Plains Woodland EVC were also scattered throughout the study area, but they did not form a patch given the percentage of native cover was less than 25% (Plates 3 and 4).



Plate 1. A patch of Tall Marsh within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 2. A patch of Tall Marsh within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 3. Individual native species (Wallaby Grass) that don't form a patch within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 4. Individual native species (Common Waterplantain) within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).

3.1.2 Scattered Trees

A total of eight scattered Eucalyptus trees were recorded within the study area, which consisted of one large tree and seven small trees (Figure 2; Appendix 1.3). The large tree is a Grey Box *Eucalyptus microcarpa* (Plate 5), while the small trees are Yellow Box *Eucalyptus melliodora* (Appendix 1.3) (Plate 6, Plate 7, Plate 8). These trees would have once formed part of the Plains Woodland EVC (EVC 803); however, the understorey vegetation contained predominantly introduced species (mainly exotic pasture grasses) and the trees no longer formed a patch of native vegetation.



Plate 5. A large, scattered tree (Grey Box) within the study area (Tree 1 on Figure 2) (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 6. Scattered eucalypt trees within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 1. A small, scattered tree within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 2. Two small eucalypt trees within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).

3.1.3 Introduced and Planted Vegetation

Areas not supporting native vegetation had a high cover (>80%) of exotic grass species, many of which were direct-seeded for use as pasture (Plate 9 and Plate 10). Scattered native grasses were generally present in these areas, however they did not have the required 25% relative cover to be considered a patch. Other weed species that were observed include

Non-native areas were dominated by environmental weeds such as *Paspalum dilatatum*, Toowoomba Canary-grass *Phalaris aquatica*, Rye-grass *Lolium* spp., Ribwort *Plantago lanceolata*, Couch *Cynodon dactylon* var. *dactylon* and Wild Oat *Avena fatua*. Twelve weed species were recorded within the study area (Appendix 1.1).



Plate 3. Exotic pasture grasses dominate most of the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 4. Exotic pasture grasses and weeds within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).

3.2 Fauna Habitat

Most of the study area consisted of paddocks, which contained improved exotic pastures (Plate 11), likely to be used as a foraging resource by common generalist bird species that are tolerant of modified open areas. The large eucalypt provides habitat such as hollows (Plate 12) for shelter for a variety of fauna species including birds, mammals, reptiles, and invertebrates. Cracked soils and the drainage line (when flowing) provide habitat and water for fauna species including birds and frogs.

Fauna observed using this habitat included Galah *Eolophus roseicapilla*, Long-billed Corella *Cacatua tenuirostris*, Australian Magpie *Cracticus tibicen*, Common Blackbird *Turdus merula*, Eastern Rosella *Platycercus eximius*, Australian Wood Duck *Chenonetta jubata*, Eastern Brown Snake *Pseudonaja textilis*, Freshwater Yabby *Cherax* sp. (Plate 13), European Hare *Lepus europaeus*, and European Rabbit *Oryctolagus cuniculus*. The European Hare and European Rabbit are both listed as a pest animals under the CaLP Act.



Plate 11. Exotic pasture grasses provide foraging habitat (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 12. Hollow bearing tree within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 13. Cracked soils provide fauna habitat within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).



Plate 14. The drainage line provides fauna habitat within the study area (Ecology and Heritage Partners Pty Ltd 24/02/2022).

3.3 Removal, Destruction or Lopping of Native Vegetation (the Guidelines)

The below clearing scenario is based on the ‘worst-case’ scenario that all native vegetation within the study area will be impacted.

3.3.1 *Vegetation proposed to be removed*

Eight scattered trees and one patch of native vegetation, as defined by the Guidelines (2017), were identified within the study area. The study area is within Location 2, with 0.347 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway (Table 3).

Condition scores for vegetation proposed to be removed are provided in Appendix 1.2.

Table 3. Removal of Native Vegetation (the Guidelines) (DELWP 2017).

Assessment pathway	Intermediate
Location Category	2
Total Extent (past and proposed) (ha)	0.347
Extent of past removal (ha)	0.00
Extent of proposed removal (ha)	0.347
Large Trees (scattered and in patches) to be removed (no.)	1
Small scattered trees to be removed (no.)	7
EVC Conservation Status of vegetation to be removed	Depleted (Tall Marsh)

3.3.2 *Offset Targets*

The offset requirement for native vegetation removal is 0.105 General Habitat Units and 1 Large Tree.

A summary of proposed vegetation losses and associated offset requirements is presented in Table 4 and the NVR Report in Appendix 3.

Table 4. Offset Targets.

General Offsets Required	0.105 General Habitat Units
Large Trees	1
Vicinity (catchment/council)	Goulburn Broken CMA / Greater Shepparton City Council
Minimum Strategic Biodiversity Value*	0.292

*The minimum Strategic Biodiversity Value is 80% of the weighted average score across habitat zones where a General offset is required.

3.4 Significance Assessment

3.4.1 Flora

The VBA contains records of one nationally significant and 20 State significant flora species previously recorded within 10 kilometres of the study area (DELWP 2022f; Figure 3). The PMST nominated an additional eight nationally significant flora species which have not been previously recorded but have the potential to occur in the locality (DCCEW 2022).

No national or State significant flora species were recorded during the site assessment and based on the modified nature of the study area, landscape context and the proximity of previous records, significant flora species are considered unlikely to occur within the study area due to the and high levels of disturbance and absence of suitable habitat. Most significant flora species records within 10 kilometres of the study area are to the north and east along the Goulburn River in the Lower Goulburn National Park (Figure 3, Appendix 1.4). One flora species listed as protected under the FFG Act, Woolly New Holland Daisy *Vittadinia gracilis*, was recorded within the north of the study area.

3.4.2 Fauna

The VBA contains records of 16 nationally significant and 18 State significant fauna species previously recorded within 10 kilometres of the study area (DELWP 2022f; Figure 4). The PMST nominated an additional seven nationally significant fauna species which have not been previously recorded but have the potential to occur in the locality (DCCEW 2022).

Most of the significant fauna species records within 10 kilometres of the study area are north and east of the study area along the Goulburn River and surrounding wetlands and parklands (Figure 4, Appendix 2). Based on the modified nature of the study area, landscape context and the proximity of previous records, significant fauna species are considered highly unlikely to rely on habitat within the study area for foraging or breeding purposes due to the lack of suitable and/or important habitat features. Mobile bird species and birds of prey are likely to occasionally fly-over the study area and may occasionally forage there.

3.4.3 *Ecological Communities*

Five nationally listed ecological communities are predicted to occur within 10 kilometres of the study area (DCCEEW 2022):

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions;
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia; and
- Natural Grasslands of the Murray Valley Plains;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains; and
- White Box-Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

However, vegetation within the study area did not meet the condition thresholds that define any national or State-significant communities due to the absence of key indicator species, the low diversity of native flora and high cover of exotic vegetation.

4 LEGISLATIVE AND POLICY IMPLICATIONS

4.1 *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*

The EPBC Act establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES). The proposed action is highly unlikely to have a significant impact on any matter of NES. As such, a referral to the Commonwealth Environment Minister is unlikely to be required regarding matters listed under the EPBC Act.

4.2 *Flora and Fauna Guarantee Act 1988 (Victoria)*

The FFG Act is the primary legislation dealing with biodiversity conservation and sustainable use of native flora and fauna in Victoria. Proponents are required to apply for an FFG Act Permit to 'take' threatened and/or protected flora species, listed vegetation communities and listed fish species in areas of public land (e.g. within road reserves, drainage lines and public reserves/parks). An FFG Act permit is generally not required for removal of species or communities on private land, or for the removal of habitat for a listed terrestrial fauna species. The FFG Act has been recently amended (2021) to contain an obligation or duty for Public Authorities to consider potential biodiversity impacts in their decisions, policies, and processes (DELWP 2021). As the land is owned and managed by a public authority (Greater Shepparton City Council) the FFG Act applies.

There are no confirmed records of species or ecological communities listed as threatened under the FFG Act being within the study area. There is one protected species, Woolly New Holland Daisy recorded within the north of the study area. A permit to take protected flora is required under the FFG Act is required.

4.3 *Planning and Environment Act 1987 (Victoria)*

The *Planning and Environment Act 1987* outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. All planning schemes contain native vegetation provisions at Clause 52.17, which requires a planning permit from the relevant local Council to remove, destroy or lop native vegetation, unless an exemption at Clause 52.17-7 of the Victoria Planning Provisions applies.

4.3.1 *Local Planning Scheme*

The study area is located within the Greater Shepparton City Council. The following zoning and overlays apply (DELWP 2022d):

- Commercial 2 Zone (C2Z)
- Farming Zone – Schedule 1 (FZ1)
- Urban Floodway Zone (UFZ)
- Development Contributions Plan Overlay – Schedule 3 (DCPO3)
- Development Plan Overlay – Schedule 14 (DPO14)

- Land Subject to Inundation Overlay (LSIO)
- Public Acquisition Overlay – Schedule 7 (PAO7) and Schedule 10 (PAO10)
- Specific Controls Overlay – Schedule 3 (SCO3)

4.3.2 *The Guidelines*

The State Planning Policy Framework and the decision guidelines at Clause 12.01 Biodiversity and Clause 52.17 Native Vegetation require Planning and Responsible Authorities to have regard for the Guidelines (DELWP 2017).

4.3.3 *Implications*

The study area is within Location 2, with 0.347 hectares of native vegetation proposed to be removed. As such, the permit application falls under the Intermediate assessment pathway.

The offset requirement for native vegetation removal is 0.105 General Habitat Units and 1 Large Tree.

A planning permit from the Greater Shepparton City Council is required to remove, destroy or lop any native vegetation under Clause 52.17 of the Planning Scheme. In this instance, the application is required to be referred to DELWP.

4.4 ***Catchment and Land Protection Act 1994 (Victoria)***

One weed (Prairie Ground Cherry *Physalis hederifolia*) listed as noxious under the *Catchment and Land Protection Act 1994* was recorded during the assessment. There was evidence of weed control activity having been recently undertaken within the study area and surrounds. Weed management should continue within the study area to enable native species to recolonise the disturbed areas.

The study area is currently occupied by two pest fauna species listed under the CaLP Act (European Hare and European Rabbit). A Pest Management Plan may be required.

4.5 ***Water Act 1989 (Victoria)***

The drainage line in the north of the study is considered a waterway by the Goulburn Broken CMA.

A 'works on waterways' permit from the Goulburn Broken CMA may be required where any action impacts on waterways within the study area. Additionally, where structures are installed within or across waterways that potentially interfere with the passage of fish or the quality of aquatic habitat, these activities should be referred to DELWP with the Goulburn Broken CMA included for comment.

4.6 *Wildlife Act 1975 and Wildlife Regulations 2013 (Victoria)*

There are areas of suitable fauna habitat (See section 3.2 Fauna Habitat), and before these are removed a fauna inspection is recommended and fauna salvage may be required prior to the removal of this habitat.

The *Wildlife Act 1975* (and associated *Wildlife Regulations 2013*) is the primary legislation in Victoria providing for protection and management of wildlife. Authorisation for habitat removal may be obtained under the *Wildlife Act 1975* through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*. Any persons engaged to remove, salvage, hold or relocate native fauna during construction must hold a current Management Authorisation under the *Wildlife Act 1975*, issued by DELWP.

5 MITIGATION MEASURES

5.1 Avoid and Minimise Statement

The current proposal considers the one patch of native vegetation and all scattered trees (eight trees) on Figure 2 as being lost for the purposes of offset calculations. This avoid and minimise statement will be updated upon confirmation of the development plan.

5.2 Best Practice Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial and aquatic values present within the study area may include:

- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including fencing retained areas of native vegetation. If indeed necessary, trees should be lopped or trimmed rather than removed. Similarly, soil disturbance and sedimentation within the drainage line and surrounding wetlands should be avoided or kept to a minimum, to avoid, or minimise impacts to fauna habitats;
- All contractors should be aware of ecologically sensitive areas to minimise the likelihood of inadvertent disturbance to areas marked for retention. Native vegetation (areas of sensitivity) should be included as a mapping overlay on any construction plans;
- Tree Protection Zones (TPZs) should be implemented to prevent indirect losses of native vegetation during construction activities (DSE 2011). A TPZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the Diameter at Breast Height (DBH). At a minimum standard a TPZ should consider the following:
 - A TPZ of trees should be a radius no less than two metres or greater than 15 metres;
 - Construction, related activities and encroachment (i.e. earthworks such as trenching that disturb the root zone) should be excluded from the TPZ;
 - Where encroachment is 10% or more of the total area of the TPZ, the tree should be considered as lost and offset accordingly (unless an arboricultural report specifies otherwise);
 - Directional drilling may be used for works within the TPZ without being considered encroachment. The directional bore should be at least 600 millimetres deep;
 - The above guidelines may be varied if a qualified arborist confirms the works will not significantly damage the tree (including stags / dead trees). In this case the tree would be retained, and no offset would be required; and,
 - Where the minimum standard for a TPZ has not been met an offset may be required.

- Removal of any habitat trees or shrubs (particularly hollow-bearing trees or trees/shrubs with nests) should be undertaken between February and September to avoid the breeding season for most fauna species. If any habitat trees or shrubs are proposed to be removed, this should be undertaken under the supervision of an appropriately qualified zoologist to salvage and translocate any displaced fauna. A Fauna Management Plan may be required to guide the salvage and translocation process;
- Where possible, construction stockpiles, machinery, roads, and other infrastructure should be placed away from areas supporting native vegetation, Large Trees and/or wetlands; and,
- Ensure that best practice sedimentation and pollution control measures are undertaken at all times, in accordance with Environment Protection Authority guidelines (EPA 2020; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and,
- As indigenous flora provides valuable habitat for indigenous fauna, it is recommended that any landscape plantings that are undertaken as part of the proposed works are conducted using indigenous species sourced from a local provenance, rather than exotic deciduous trees and shrubs.

5.3 Offset Impacts and Strategy

According to DELWPs Native Vegetation Offset Register (DEECA 2023), there are five offset sites within the Goulburn Broken CMA or Greater Shepparton City Council region that can be used to satisfy the General Habitat Unit and Large tree offset requirements.

6 CONCLUSION

Desktop-based assessments and field surveys were undertaken to assess the biodiversity value of the study area to inform the preparation of a planning scheme amendment seeking to rezone the study area (Figure 1) from Farming Zone to General Residential Zone. The findings of the assessment confirmed that the majority (>90%) of the study area supports non-native vegetation and is highly disturbed. Based on the findings of the assessment, it is considered that the study area can support residential development. As outlined in both Commonwealth and State policy, a project should be designed to take into consideration the three-step approach, which is:

- Avoid environmental impacts;
- Minimise impacts; and,
- Where impacts cannot be avoided or minimised, compensate for the residual impacts using other mitigation measures such as offsets.

7 FURTHER REQUIREMENTS

Further requirements associated with development of the study area, as well as additional studies or reporting that may be required, are provided in 5.

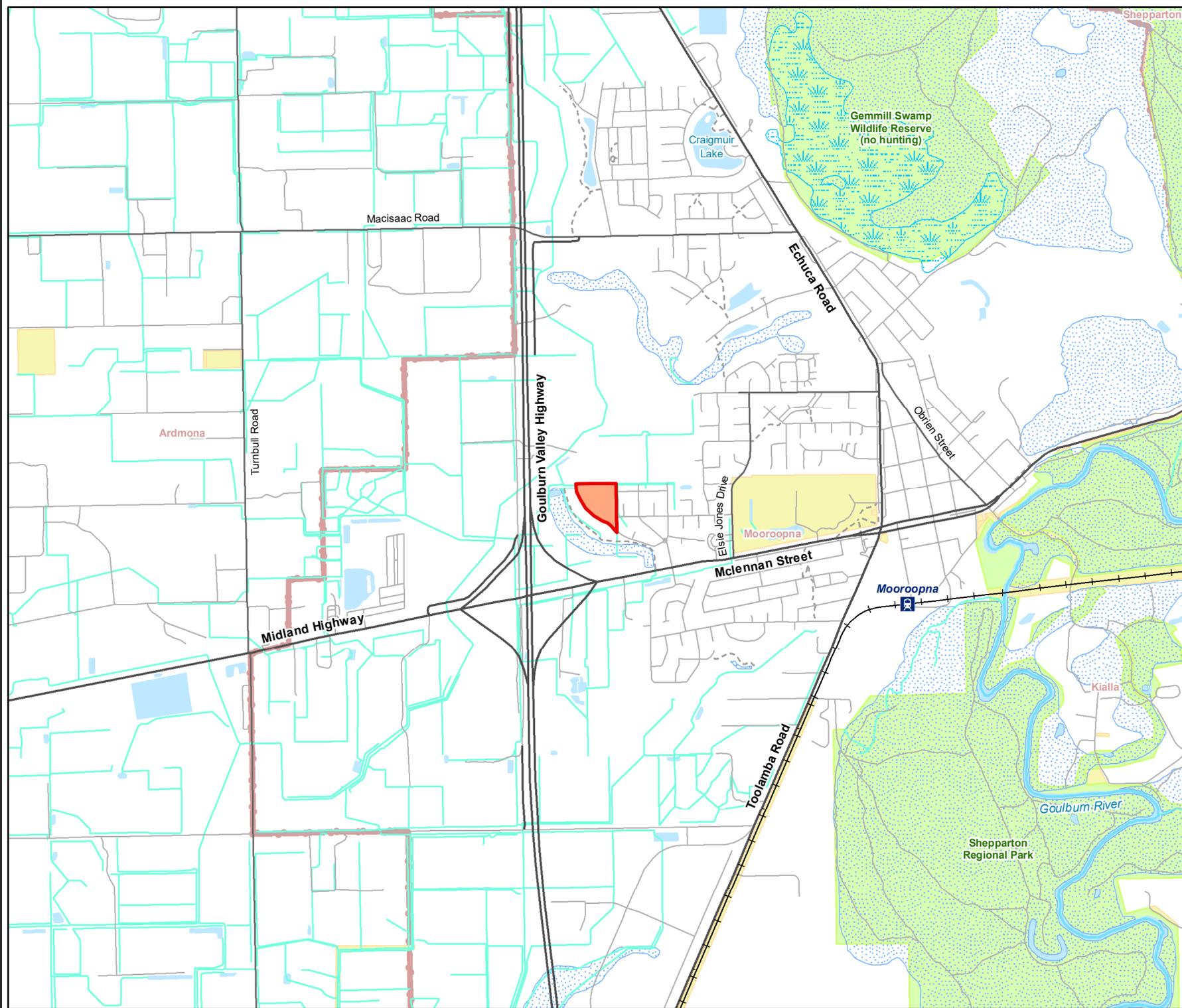
Table 5. Further requirements associated with development of the study area.

Relevant Legislation	Implications	Further Action
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	The EPBC Act establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any matters of National Environment Significance (NES). There is very limited suitable habitat within the study area for flora and fauna species listed under the EPBC Act. There are not likely to be any significant impacts to any EPBC species by the proposed development.	No further action required.
<i>Flora and Fauna Guarantee Act 1988</i>	There are no confirmed records of species or ecological communities listed as threatened under the FFG Act being within the study area. There is one protected species, Woolly New Holland Daisy recorded within the north of the study area. A permit to take protected flora is required under the FFG Act is required.	As the land is owned and managed by a public authority (Greater Shepparton City Council) the FFG Act applies.
<i>Environment Effect Act 1978</i>	There are no significant species within the study area. It is unlikely that the proposed development will have a significant effect on any of significant species and the proposed development will impact less than 0.5 hectares of an EVC and the EVC is not a EPBC or FFG Act threatened community.	No further action required.
<i>Planning and Environment Act 1987</i>	A planning permit from the Greater Shepparton City Council is required to remove, destroy or lop any native vegetation under Clause 52.17 of the Planning Scheme. The application falls under the Intermediate Assessment Pathway so does require referral to DELWP.	Submit Planning Application.
<i>Catchment and Land Protection Act 1994</i>	One weed species (Prairie Ground Cherry) and two pest species (European Rabbit and European Hare) listed under the CaLP Act were recorded within the study area. To meet requirements under the CaLP Act, listed noxious weeds and pests should be appropriately controlled throughout the study area.	Listed noxious weeds and pests should be appropriately controlled throughout the study area Planning Permit conditions may include a requirement for a Weed and/or Pest Management Plan.
<i>Wildlife Act 1975</i>	Any persons engaged to conduct salvage and relocation, or general handling of terrestrial fauna species must hold a current Management Authorisation.	Ensure wildlife specialists hold a current Management Authorisation.
<i>Water Act 1989</i>	A 'works on waterways' permit is likely to be required from the Goulburn Broken CMA where any action impacts on waterways within the study area.	Obtain a 'works on waterways' permit from the Goulburn Broken CMA.

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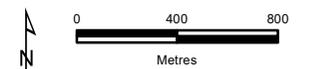
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- Legend**
- Study Area
 - Railway
 - Major Road
 - Collector Road
 - Minor Road
 - Proposed Road
 - Minor Watercourse
 - Major Watercourse
 - Permanent Waterbody
 - Land Subject to Inundation
 - Wetland/Swamp
 - Parks and Reserves
 - Crown Land
 - Localities



Figure 1
Location of the study area
Ecological Assessment for part of 294 McLennan Street, Mooroopna



Map Scale: 1:30,000 @ A4
 Coordinate System: GDA2020 MGA Zone 55



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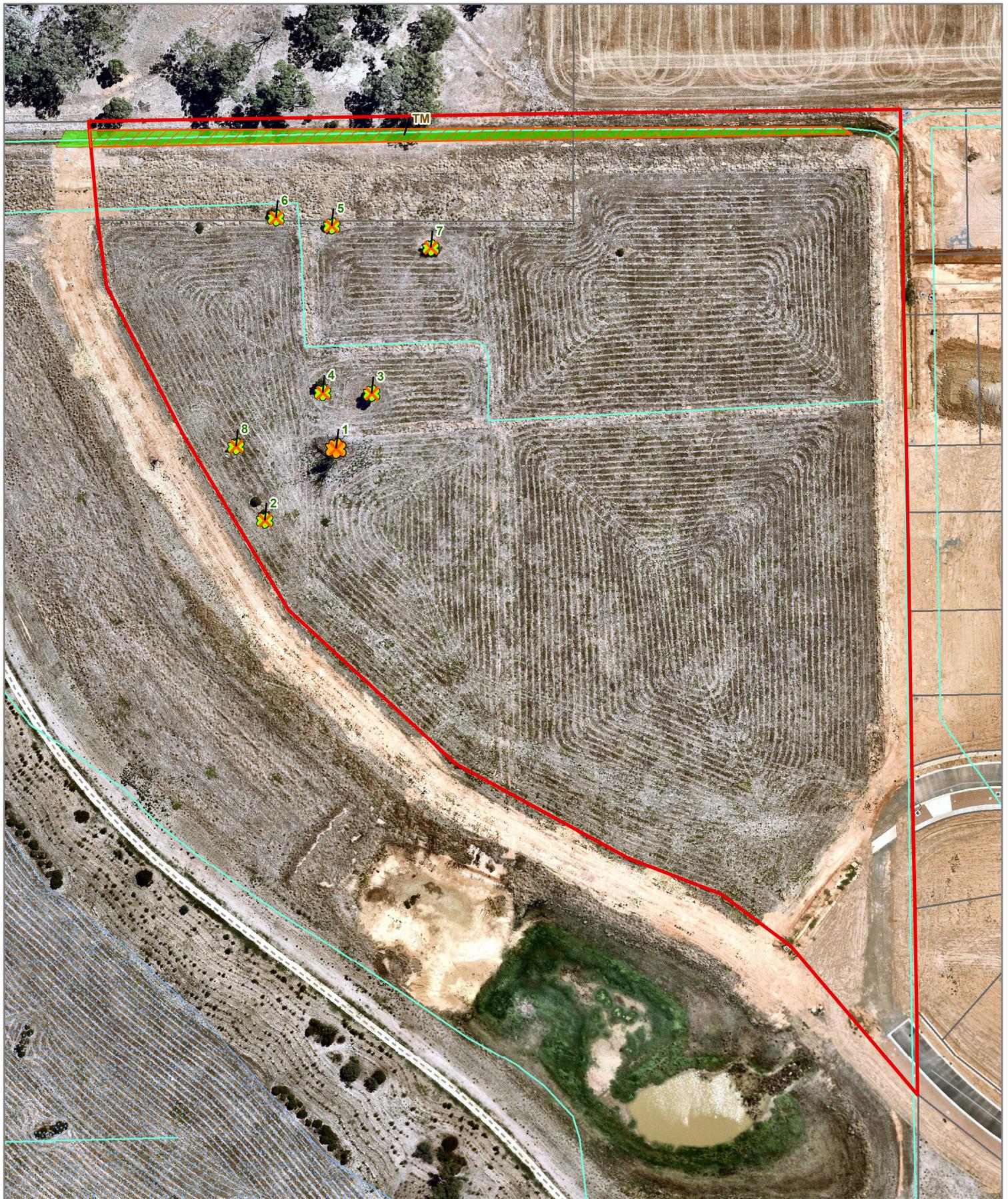
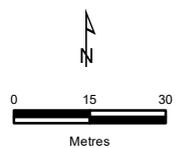


Figure 2
Ecological features
Ecological Assessment for part of 294 McLennan Street, Mooroopna

- Legend**
- Study Area
 - ✿ Scattered Large Tree
 - ✿ Scattered Small Tree
 - ✕ Tree impacted
- Ecological Vegetation Class**
- Tall Marsh (EVC 821)
 - Impacted vegetation



Map Scale: 1:1,500 @ A4
 Coordinate System: GDA2020 MGA Zone 55

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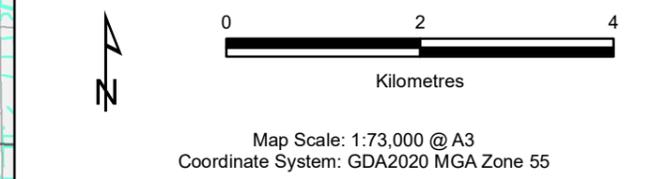
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Legend

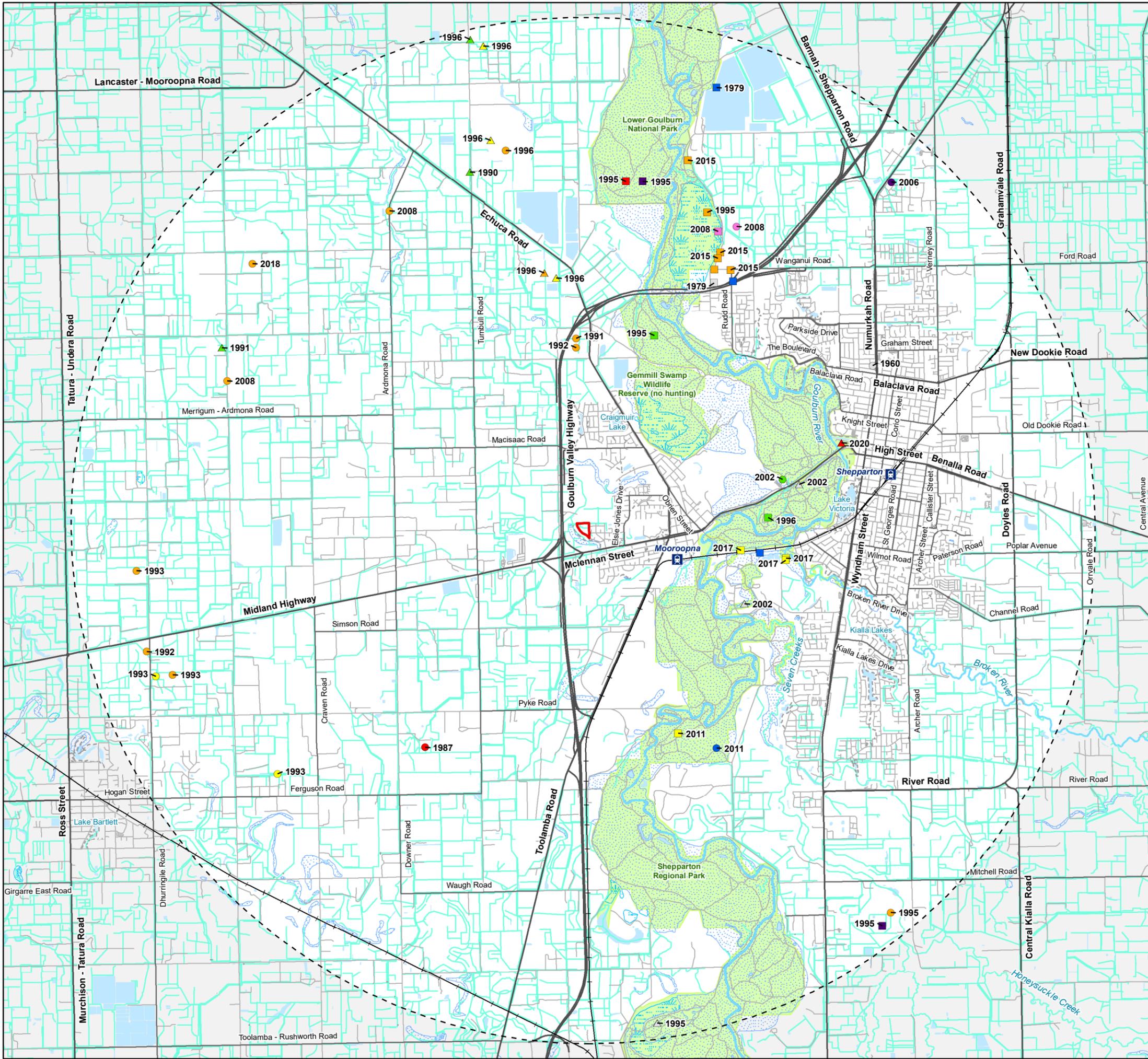
- Study Area
- Jericho Wire-grass
- Late-flower Flax-lily
- River Swamp
- Wallaby-grass
- Riverina Bitter-cress
- Riverina Fireweed
- Sand Rush
- Small Scurf-pea
- Spotted Gum
- Striped Water-milfoil
- Twiggy Sida
- Waterbush
- Glistening Dock
- Grey Billy-buttons
- Bent-leaf Wattle
- Brown Beetle-grass
- Buloke
- Button Rush
- Chinese Lespedeza
- Delicate Crane's-bill
- Floodplain Fireweed
- Giant Honey-myrtle

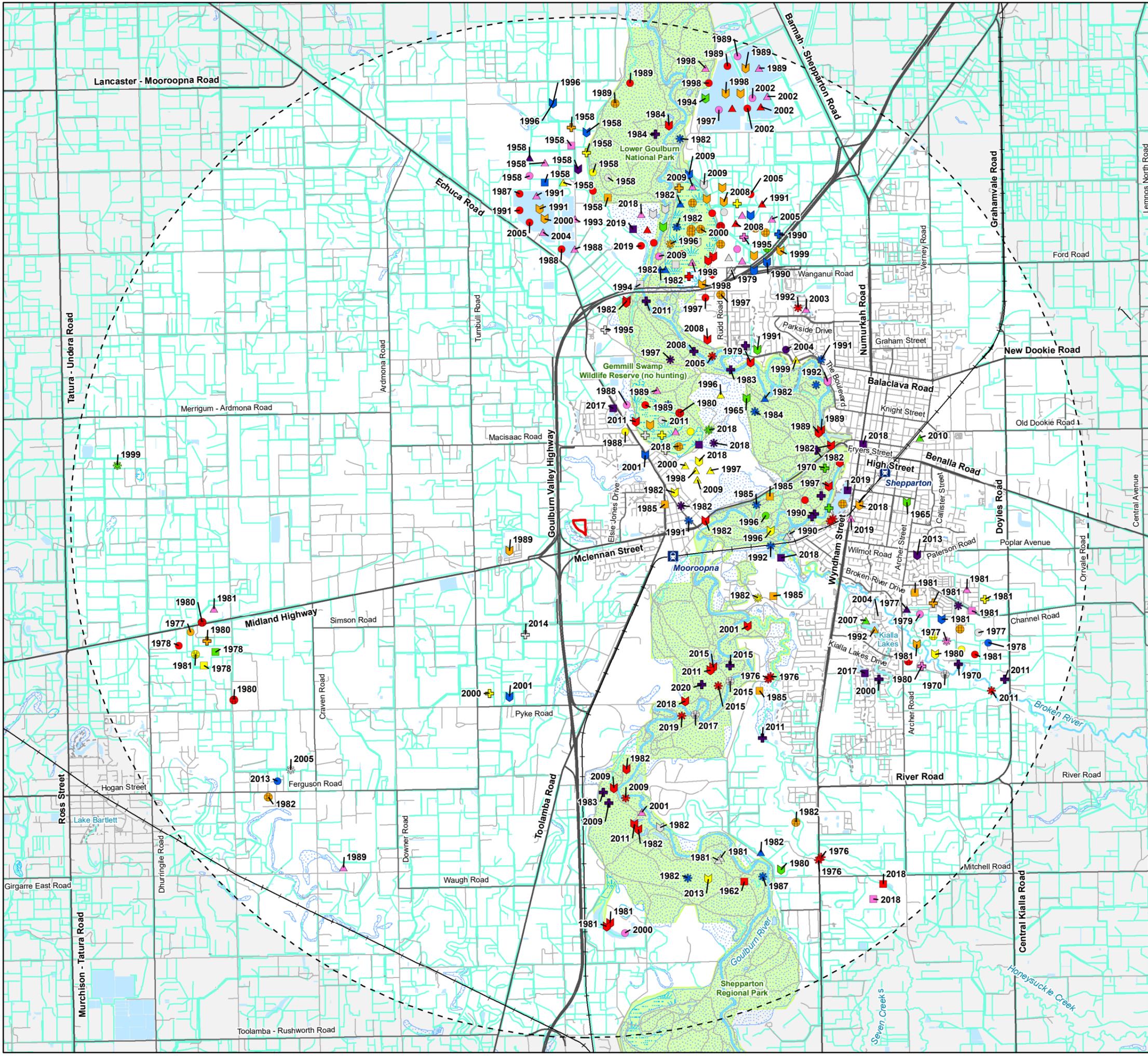


Figure 3
Previously documented significant flora within 10km of the study area
Ecological Assessment for part of 294 McLennan Street, Mooroopna



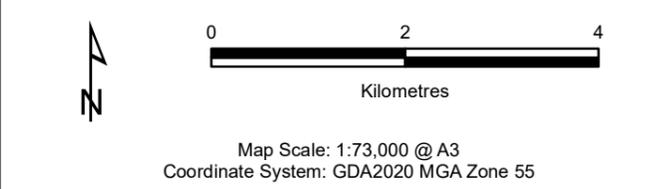
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- Legend**
- Study Area
- Significant fauna**
- Australasian Bittern
 - Australasian Shoveler
 - Australian Gull-billed Tern
 - Australian Little Bittern
 - Barking Owl
 - Black Falcon
 - Blue-billed Duck
 - Broad-shelled Turtle
 - Brown Toadlet
 - Brush-tailed Phascogale
 - Bush Stone-curlew
 - Common Greenshank
 - Curlew Sandpiper
 - Diamond Dove
 - Diamond Firetail
 - Eastern Great Egret
 - ▲ Flat-headed Galaxias
 - ▲ Freckled Duck
 - ▲ Freshwater Catfish
 - ▲ Grey-crowned Babbler
 - ▲ Grey-headed Flying-fox
 - ▲ Growling Grass Frog
 - ▲ Hardhead
 - ▲ Hooded Robin
 - + Lace Monitor
 - + Lewin's Rail
 - + Little Eagle
 - + Little Egret
 - + Macquarie Perch
 - + Magpie Goose
 - + Marsh Sandpiper
 - + Murray Cod
 - + Murray River Turtle
 - + Murray-Darling Rainbowfish
 - + Musk Duck
 - + Painted Honeyeater
 - + Platypus
 - + Plumed Egret
 - + Powerful Owl
 - + Regent Honeyeater
 - + Regent Parrot
 - + Silver Perch
 - + Sloane's Froglet
 - + Speckled Warbler
 - + Square-tailed Kite
 - + Squirrel Glider
 - + Superb Parrot
 - + Swift Parrot
 - + Trout Cod
 - + Turquoise Parrot
 - + White-bellied Sea-Eagle
 - + White-throated Needletail
 - + Wood Sandpiper

Figure 4
 Previously documented significant fauna within 10km of the study area
Ecological Assessment for part of 294 McLennan Street, Mooroopna



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APPENDIX 1 – FLORA

Appendix 1.1 Flora Results

Legend:

I Protected under the FFG Act (DELWP 2019);

* Listed as a noxious weed under the CaLP Act;

w Weed of National Significance;

Table A1.1. Flora within the study area.

Scientific Name	Common Name	Notes
INDIGENOUS SPECIES		
<i>Alisma plantago-aquatica</i>	Common Water-plantain	-
<i>Anthosachne scabra</i>	Common Wheat-grass	-
<i>Atriplex semibaccata</i>	Berry Saltbush	-
<i>Austrostipa</i> spp.	Spear Grass	-
<i>Azolla filiculoides</i>	Pacific Azolla	-
<i>Carex gaudichaudiana</i>	Fen Sedge	-
<i>Centipeda cunninghamii</i>	Common Sneezeweed	-
<i>Chamaesyce</i> spp.	Caustic Weed	-
<i>Convolvulus</i> spp.	Bindweed	-
<i>Cyperus</i> spp.	Flat Sedge	-
<i>Einadia nutans</i>	Nodding Saltbush	-
<i>Eleocharis acuta</i>	Common Spike-sedge	-
<i>Enchylaena</i> spp.	Ruby Saltbush	-
<i>Eucalyptus melliodora</i>	Yellow Box	-
<i>Eucalyptus microcarpa</i>	Grey Box	-
<i>Galium</i> spp.	Bedstraw	-
<i>Geranium</i> spp.	Crane's Bill	-
<i>Hypoxis vaginata</i>	Yellow Star	-
<i>Isolepis</i> spp.	Club Sedge	-
<i>Juncus</i> sp	Rush	-
<i>Lachnagrostis</i> spp.	Blown Grass	-
<i>Melicytus dentatus</i>	Tree Violet	-
<i>Myriophyllum</i> spp.	Water Milfoil	-
<i>Oxalis perennans</i>	Grassland Wood-sorrel	-
<i>Phragmites australis</i>	Common Reed	-

Scientific Name	Common Name	Notes
<i>Poa</i> spp.	Tussock Grass	-
<i>Portulaca oleracea</i>	Common Purslane	-
<i>Rumex brownii</i>	Slender Dock	-
<i>Rytidosperma</i> spp.	Wallaby Grass	-
<i>Typha orientalis</i>	Broad-leaf Cumbungi	-
<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	I
NON-INDIGENOUS OR INTRODUCED SPECIES		
<i>Agrostis capillaris</i> var. <i>capillaris</i>	Brown-top Bent	-
<i>Avena fatua</i>	Wild Oat	-
<i>Brassica</i> spp.	Turnip	-
<i>Briza</i> sp.	Quaking-grass	-
<i>Bromus</i> sp.	Prairie Grass	-
<i>Cenchrus clandestinus</i>	Kikuyu	-
<i>Cichorium intybus</i>	Chicory	-
<i>Cynodon dactylon</i> var. <i>dactylon</i>	Couch	-
<i>Cenchrus clandestinus</i>	Kikuyu	-
<i>Euphorbia</i> sp.	Sprurge	-
<i>Phalaris aquatica</i>	Toowoomba canary Grass	-
<i>Physalis hederifolia</i>	Praire Ground Cherry	*
<i>Plantago lanceolata</i>	Ribwort	-
<i>Xanthium spinosum</i>	Bathurst Burr	-

Appendix 1.2 – Habitat Hectare Assessment

Table A1.2. Habitat Hectare Assessment Table.

Vegetation Zone		Tall Marsh
Bioregion		Victorian Riverina Bioregion
EVC / Tree		TM
EVC Number		165
EVC Conservation Status		De
Patch Condition	Large Old Trees /10	0
	Canopy Cover /5	0
	Under storey /25	20
	Lack of Weeds /15	9
	Recruitment /10	5
	Organic Matter /5	5
	Logs /5	0
	Treeless EVC Multiplier	1.36
	Subtotal =	53.04
	Landscape Value /25	3
Habitat Points /100	56	
Habitat Score		0.56

Appendix 1.3 – Scattered Trees and Large Trees in Patches

Table A1.3. Scattered Trees and Large Trees in Patches.

Tree # (Figure 2)	Species Name	Common Name	DBH (cm)	Size Class	Scattered / Parch	Status
1	<i>Eucalyptus microcarpa</i>	Grey Box	133	Large	Scattered	Removed
2	<i>Eucalyptus melliodora</i>	Yellow Box	10	Small	Scattered	Removed
4	<i>Eucalyptus melliodora</i>	Yellow Box	27	Small	Scattered	Removed
5	<i>Eucalyptus melliodora</i>	Yellow Box	10	Small	Scattered	Removed
6	<i>Eucalyptus melliodora</i>	Yellow Box	10	Small	Scattered	Removed
7	<i>Eucalyptus melliodora</i>	Yellow Box	16	Small	Scattered	Removed
10	<i>Eucalyptus melliodora</i>	Yellow Box	19	Small	Scattered	Removed
11	<i>Eucalyptus microcarpa</i>	Grey Box Stag	67	Small	Scattered	Removed

Appendix 1.4 – Significant Flora Species

Significant flora within 10 kilometres of the study area is provided in the Table A1.4.3 at the end of this section, with Tables A1.4.1 and A1.4.2 below providing the background context for the values in Table 1.4.3.

Table A1.4.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 7 in Table A1.4.3.

EPBC (<i>Environment Protection and Biodiversity Conservation Act 1999</i>):		FFG (<i>Flora and Fauna Guarantee Act 1988</i>):	
EX	Extinct	cr	Critically endangered
CR	Critically endangered	en	Endangered
EN	Endangered	vu	Vulnerable
VU	Vulnerable		
#	Listed on the Protected Matters Search Tool		

Table A1.4.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant flora species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 8 in Table A1.4.3.

1	Known Occurrence	<ul style="list-style-type: none"> Recorded within the study area recently (i.e. within ten years).
2	High Likelihood	<ul style="list-style-type: none"> Previous records of the species in the local vicinity; and/or, The study area contains areas of high-quality habitat.
3	Moderate Likelihood	<ul style="list-style-type: none"> Limited previous records of the species in the local vicinity; and/or The study area contains poor or limited habitat.
4	Low Likelihood	<ul style="list-style-type: none"> Poor or limited habitat for the species, however other evidence (such as lack of records or environmental factors) indicates there is a very low likelihood of presence.
5	Unlikely	<ul style="list-style-type: none"> No suitable habitat and/or outside the species range.

Table A1.4.3 Significant flora recorded within 10 kilometres of the study area.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
<i>Amphibromus fluitans</i>	River Swamp Wallaby-grass	1996	2	VU	-	3	Few records and limited suitable habitat along drainage line. Recorded about five kilometres to the east of the study area.
<i>Brachyscome muelleroides</i> #	Mueller Daisy	-	-	VU	en	4	Limited suitable habitat. Study area is modified and low quality
<i>Lepidium monoplocoides</i> #	Winged Pepper-cress	-	-	EN	en	4	Few records. Potential habitat. Study area is modified and low quality.
<i>Myriophyllum porcatum</i> #	Ridged Water-milfoil	-	-	VU	cr	4	Few records. Potential habitat.
<i>Pimelea spinescens</i> subsp. <i>spinescens</i> #	Plains Rice-flower	-	-	CR	cr	4	Few records. Potential habitat. Study area is modified and low quality
<i>Sclerolaena napiformis</i> #	Turnip Copperburr	-	-	EN	cr	4	Few records. Potential habitat. Study area is modified and low quality
<i>Senecio macrocarpus</i> #	Large-fruit Fireweed	-	-	VU	cr	4	Few records. Potential habitat. Study area is modified and low quality
<i>Senecio psilocarpus</i> #	Swamp Fireweed	-	-	VU	-	4	Few records. Limited potential habitat.
<i>Swainsona plagiotropis</i> #	Red Darling-pea	-	-	VU	en	4	Few records. Potential habitat. Study area is modified and low quality

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
STATE SIGNIFICANCE							
<i>Acacia flexifolia</i>	Bent-leaf Wattle	1960	1	-	en	5	Historical record, and none seen in field assessment
<i>Allocasuarina luehmannii</i>	Buloke	2018	11	-	vu	5	Suitable habitat. Not seen in field assessment
<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>	Jericho Wire-grass	2015	6	-	cr	2	Few records. Potential habitat. Study area is modified and low quality
<i>Cardamine moirensis</i>	Riverina Bitter-cress	2017	3	-	en	2	Few records. Potential habitat. Study area is modified and low quality
<i>Corymbia maculata</i>	Spotted Gum	2020	1	-	vu	5	Not recorded within study area during the field assessment
<i>Craspedia canens</i>	Grey Billy-buttons	1995	1	-	cr	3	One record. Potential habitat.
<i>Cullen parvum</i>	Small Scurf-pea	2002	3	-	en	3	Few records. Potential habitat. Study area is modified and low quality
<i>Cyperus leptocarpus</i>	Button Rush	1993	2	-	en	4	Few records. Potential habitat. Study area is modified and low quality
<i>Dianella tarda</i>	Late-flower Flax-lily	2017	4	-	cr	4	Few records. Potential habitat. Study area is modified and low quality
<i>Diplachne fusca</i> subsp. <i>fusca</i>	Brown Beetle-grass	1987	1	-	en	4	Historical record. Potential suitable habitat within the drain.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Geranium</i> sp. 6	Delicate Crane's-bill	2011	1	-	en	3	One record. Potential habitat. Study area is modified and low quality
<i>Juncus psammophilus</i>	Sand Rush	1995	2	-	en	3	Few records. Potential habitat. Study area is modified and low quality
<i>Lespedeza juncea</i> subsp. <i>sericea</i>	Chinese Lespedeza	2002	1	-	en	3	One record. Potential habitat.
<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Giant Honey-myrtle	2006	1	-	en	4	Few records. Potential habitat. Not seen in field assessment.
<i>Myoporum montanum</i>	Waterbush	1996	3	-	en	3	Few records. Potential habitat. Not seen in field assessment.
<i>Myriophyllum striatum</i>	Striped Water-milfoil	1996	1	-	en	3	Few records. Potential habitat.
<i>Rumex crystallinus</i> s.s.	Glistening Dock	1979	1	-	en	4	Historical record. Potential suitable habitat within the drain.
<i>Senecio campylocarpus</i>	Floodplain Fireweed	2008	6	-	en	2	Recent records. Suitable habitat. Study area is modified and low quality
<i>Senecio longicollaris</i>	Riverina Fireweed	2008	1	-	en	3	Few records. Potential habitat. Study area is modified and low quality
<i>Sida intricata</i>	Twiggy Sida	1996	3	-	en	3	Few records. Potential habitat. Study area is modified and low quality.

Appendix 2 – Significant Fauna Species

Significant fauna within 10 kilometres of the study area is provided in the Table A2. 3 at the end of this section, with Tables A2.1 and A2.2 below providing the background context for the values in Table 2.3.

Table A2.1 Conservation status of each species for each Act/policy. The values in this table correspond to Columns 5 to 8 in Table A2.1.3.

EPBC (<i>Environment Protection and Biodiversity Conservation Act 1999</i>):		FFG (<i>Flora and Fauna Guarantee Act 1988</i>):	
EX	Extinct	cr	Critically endangered
CR	Critically endangered	en	Endangered
EN	Endangered	vu	Vulnerable
VU	Vulnerable		
CD	Conservation dependent		
#	Listed on the Protected Matters Search Tool		

Table A2.2 Likelihood of occurrence rankings: Habitat characteristics assessment of significant fauna species previously recorded within 10 kilometres of the study area, or that may potentially occur within the study area to determine their likelihood of occurrence. The values in this table correspond to Column 9 in Table A2.1.3.

1	High Likelihood	<ul style="list-style-type: none"> Known resident in the study area based on site observations, database records, or expert advice; and/or, Recent records (i.e. within five years) of the species in the local area (DELWP 2022g); and/or, The study area contains the species’ preferred habitat.
2	Moderate Likelihood	<ul style="list-style-type: none"> The species is likely to visit the study area regularly (i.e. at least seasonally); and/or, Previous records of the species in the local area (DELWP 2022g); and/or, The study area contains some characteristics of the species’ preferred habitat.
3	Low Likelihood	<ul style="list-style-type: none"> The species is likely to visit the study area occasionally or opportunistically whilst en route to more suitable sites; and/or, There are only limited or historical records of the species in the local area (i.e. more than 20 years old); and/or, The study area contains few or no characteristics of the species’ preferred habitat.

4	Unlikely	<ul style="list-style-type: none"> No previous records of the species in the local area; and/or, The species may fly over the study area when moving between areas of more suitable habitat; and/or, Out of the species' range; and/or, No suitable habitat present.
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Table A2.3. Significant fauna within 10 kilometres of the study area.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
NATIONAL SIGNIFICANCE							
<i>Botaurus poiciloptilus</i>	Australasian Bittern	2011	4	EN	cr	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Rostratula australis</i> #	Australian Painted Snipe	-	-	EN	cr	4	Limited suitable habitat. May fly-over the study area.
<i>Calidris ferruginea</i>	Curlew Sandpiper	1978	1	CR	cr	4	Historic record. Some suitable.
<i>Numenius madagascariensis</i> #	Eastern Curlew	-	-	CR	cr	4	Few records. Limited suitable habitat. May fly-over the study area.
<i>Galaxias rostratus</i>	Flat-headed Galaxias	1990	6	CR	vu	3	Few records. Limited suitable habitat.
<i>Synemon plana</i> #	Golden Sun Moth	-	-	VU	vu	3	Limited suitable habitat.
<i>Falco hypoleucos</i> #	Grey Falcon	-	-	VU	vu	3	Species may forage occasionally over the site. May fly-over or forage within the study area.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	2010	2	VU	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Litoria raniformis</i>	Growling Grass Frog	1982	7	VU	vu	3	Historic record. Some suitable habitat.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Macquaria australasica</i>	Macquarie Perch	1970	4	EN	en	4	Historic records and limited suitable habitat.
<i>Maccullochella peelii</i>	Murray Cod	2020	50	VU	en	4	Few records. Limited suitable habitat.
<i>Grantiella picta</i>	Painted Honeyeater	2018	5	VU	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Aprasia parapulchella</i> #	Pink-tailed Worm-lizard	-	-	VU	en	3	Few records. Limited suitable habitat.
<i>Pedionomus torquatus</i> #	Plains-wanderer	-	-	CR	cr	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Anthochaera phrygia</i>	Regent Honeyeater	2013	2	CR	cr	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Polytelis anthopeplus monarchoides</i>	Regent Parrot	2005	1	VU	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Bidyanus bidyanus</i>	Silver Perch	2019	14	CR	en	4	Few records. Limited suitable habitat.
<i>Crinia sloanei</i>	Sloane's Froglet	1996	1	EN	en	3	Few records. Limited suitable habitat.
<i>Delma impar</i> #	Striped Legless Lizard	-	-	VU	en	3	Few records. Limited suitable habitat.
<i>Polytelis swainsonii</i>	Superb Parrot	1977	1	VU	en	4	Few records. Limited suitable habitat. May fly-over the study area.
<i>Lathamus discolor</i>	Swift Parrot	2018	12	CR	cr	3	Few records. Limited suitable habitat. May fly-over the study area.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Maccullochella macquariensis</i>	Trout Cod	2017	3	EN	en	4	Few records. Limited suitable habitat.
<i>Hirundapus caudacutus</i>	White-throated Needletail	1981	10	VU	vu	4	Few historical records. Limited suitable habitat. May fly-over the study area.
STATE SIGNIFICANCE							
<i>Spatula rhynchotis</i>	Australasian Shoveler	2019	115	-	vu	2	Lots of records. Limited suitable habitat. May fly-over the study area.
<i>Gelochelidon macrotarsa</i>	Australian Gull-billed Tern	1977	2	-	en	4	Few records. Limited suitable habitat. May fly-over the study area.
<i>Ixobrychus dubius</i>	Australian Little Bittern	2017	9	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Ninox connivens</i>	Barking Owl	1995	1	-	cr	3	Few records. Limited suitable habitat. May fly-over or forage within the study area.y
<i>Falco subniger</i>	Black Falcon	2013	2	-	cr	3	Few records. Limited suitable habitat. May fly-over or forage within the study area.
<i>Oxyura australis</i>	Blue-billed Duck	2009	26	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Chelodina expansa</i>	Broad-shelled Turtle	2003	1	-	en	3	Few records. Limited suitable habitat.
<i>Pseudophryne bibronii</i>	Brown Toadlet	2009	3	-	en	3	Few records. Limited suitable habitat.
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	2018	3	-	vu	3	Few records. Limited suitable habitat.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Burhinus grallarius</i>	Bush Stone-curlew	1985	22	-	cr	3	Few records. Limited suitable habitat.
<i>Tringa nebularia</i>	Common Greenshank	1978	1	-	en	4	Few records. Limited suitable habitat.
<i>Geopelia cuneata</i>	Diamond Dove	1957	1	-	vu	4	Historical record. Limited suitable habitat. May fly-over the study area.
<i>Stagonopleura guttata</i>	Diamond Firetail	2018	6	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Ardea alba modesta</i>	Eastern Great Egret	2019	57	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Stictonetta naevosa</i>	Freckled Duck	2009	9	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Tandanus tandanus</i>	Freshwater Catfish	1992	1	-	en	4	Few records. Limited suitable habitat.
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	2009	8	-	vu	3	Few records. Limited suitable habitat.
<i>Aythya australis</i>	Hardhead	2019	134	-	vu	3	Few records. Limited suitable habitat.
<i>Melanodryas cucullata</i>	Hooded Robin	1977	2	-	vu	4	Few records. Limited suitable habitat. May fly-over the study area.
<i>Varanus varius</i>	Lace Monitor	2014	4	-	en	3	Few records. Limited suitable habitat.
<i>Lewinia pectoralis</i>	Lewin's Rail	2009	1	-	vu	3	Few records. Limited suitable habitat.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Hieraaetus morphnoides</i>	Little Eagle	2009	23	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Egretta garzetta</i>	Little Egret	2008	8	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Anseranas semipalmata</i>	Magpie Goose	1990	3	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Tringa stagnatilis</i>	Marsh Sandpiper	1995	2	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Emydura macquarii</i>	Murray River Turtle	2009	6	-	cr	3	Few records. Limited suitable habitat.
<i>Melanotaenia fluviatilis</i>	Murray-Darling Rainbowfish	2018	65	-	en	4	Few records. Limited suitable habitat.
<i>Biziura lobata</i>	Musk Duck	2018	76	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Ornithorhynchus anatinus</i>	Platypus	1996	7	-	vu	4	Few records. No suitable habitat.
<i>Ardea intermedia plumifera</i>	Plumed Egret	2009	26	-	cr	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Ninox strenua</i>	Powerful Owl	1992	1	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	1982	1	-	en	4	Few records. Limited suitable habitat.

Scientific Name	Common Name	Last Documented Record (VBA)	# Records (VBA)	EPBC Act	FFG ACT	Likelihood of occurrence in the study area	Rationale for likelihood of occurrence
<i>Lophoictinia isura</i>	Square-tailed Kite	2018	2	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Petaurus norfolcensis</i>	Squirrel Glider	1992	23	-	vu	3	Few records. Limited suitable habitat.
<i>Neophema pulchella</i>	Turquoise Parrot	2018	5	-	vu	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	2019	50	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.
<i>Tringa glareola</i>	Wood Sandpiper	2009	3	-	en	3	Few records. Limited suitable habitat. May fly-over the study area.

APPENDIX 3 – NATIVE VEGETATION REMOVAL (NVR) REPORT

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: 30/03/2023

Report ID: EHP_2023_047

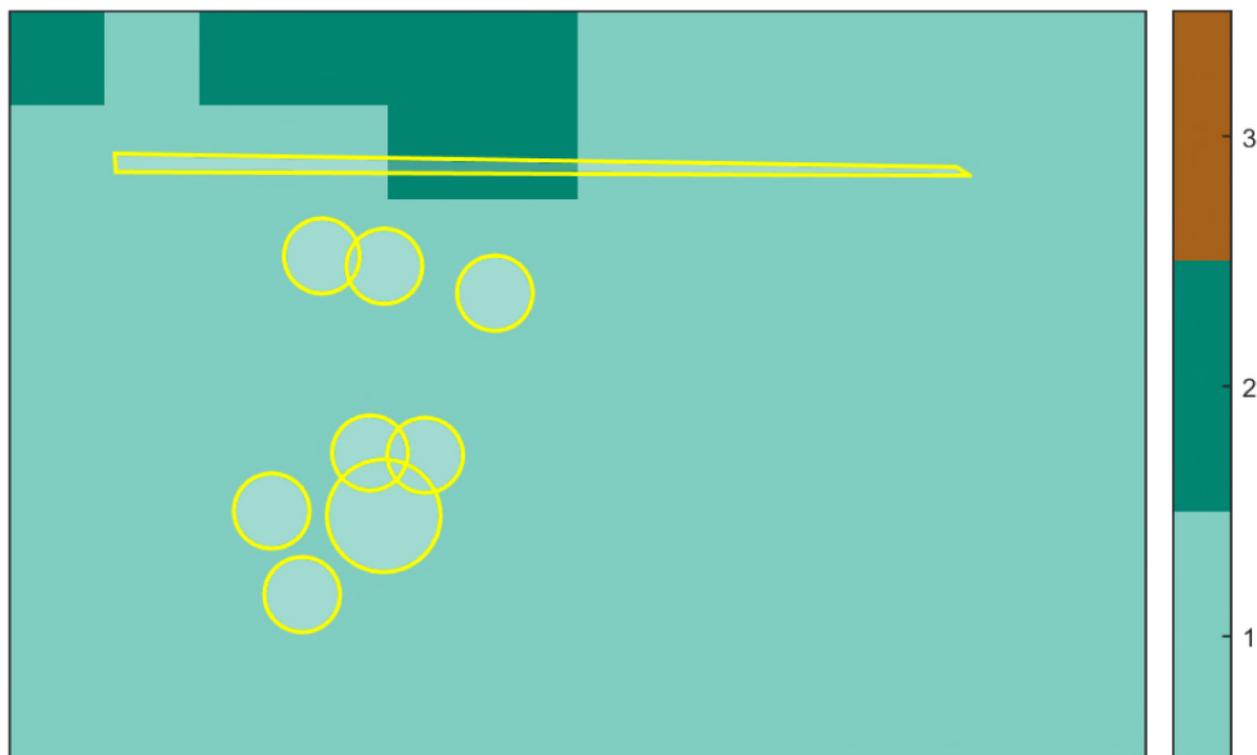
Time of issue: 1:27 pm

Project ID	EHP15976_Mooroopna_VG94
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Assessment pathway

Assessment pathway	Intermediate Assessment Pathway
Extent including past and proposed	0.347 ha
Extent of past removal	0.000 ha
Extent of proposed removal	0.347 ha
No. Large trees proposed to be removed	1
Location category of proposed removal	Location 2 The native vegetation is in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map). Removal of less than 0.5 hectares of native vegetation in this location will not have a significant impact on any habitat for a rare or threatened species.

1. Location map



Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount¹	0.105 general habitat units
Vicinity	Goulburn Broken Catchment Management Authority (CMA) or Greater Shepparton City Council
Minimum strategic biodiversity value score ²	0.292
Large trees	1 large tree

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

¹ The general offset amount required is the sum of all general habitat units in Appendix 1.

² Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Intermediate Assessment Pathway and it will be assessed under the Intermediate Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) for a full list of application requirements. This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (met unless you wish to include a site assessment)
- Maps showing the native vegetation and property
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defensible space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- An offset statement that explains that an offset has been identified and how it will be secured.

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This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Obtaining this publication does not guarantee that an application will meet the requirements of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes or that a permit to remove native vegetation will be granted.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes.

Appendix 1: Description of native vegetation to be removed

All zones require a general offset, the general habitat units each zone is calculated by the following equation in accordance with the Guidelines:

$$\text{General habitat units} = \text{extent} \times \text{condition} \times \text{general landscape factor} \times 1.5, \text{ where the general landscape factor} = 0.5 + (\text{strategic biodiversity value score}/2)$$

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

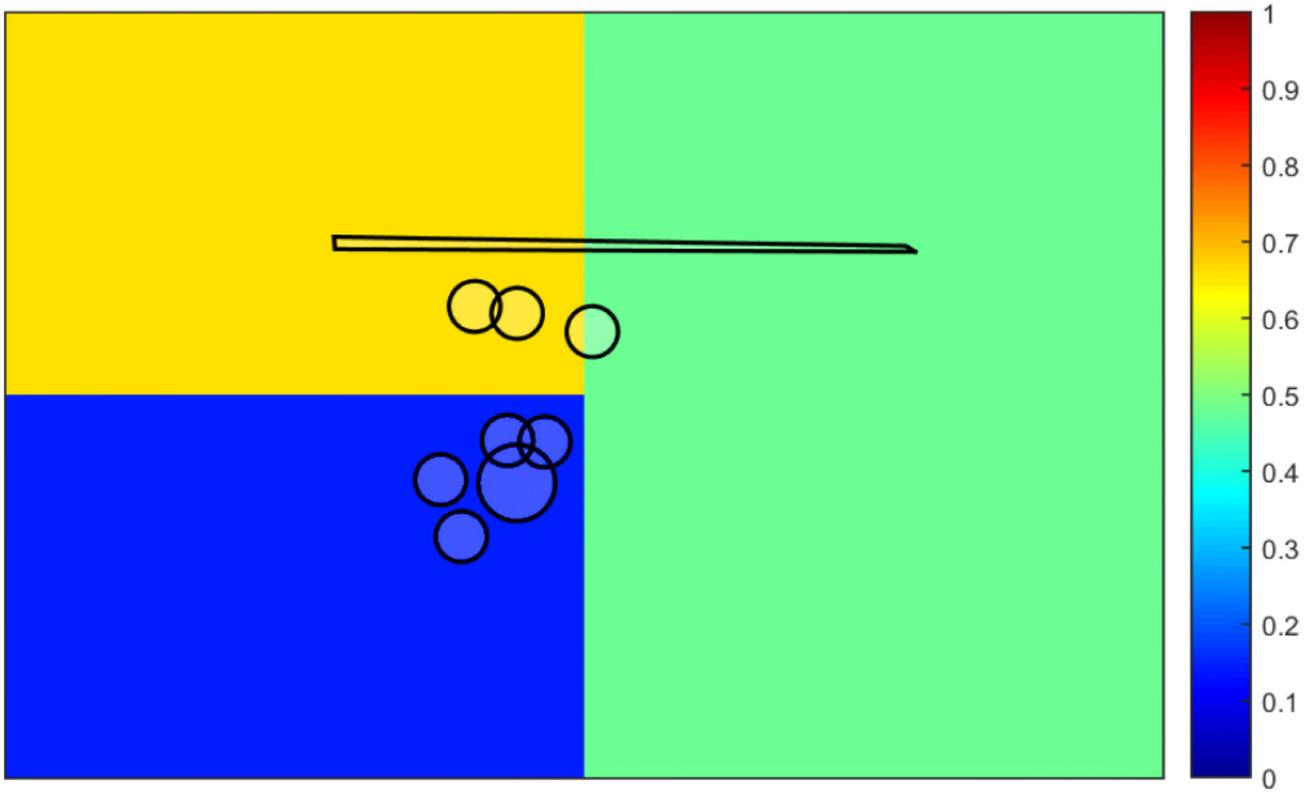
Zone	Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym				
	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-	Patch	vriv0821	Depleted	0	no	0.560	0.079	0.079	0.574		0.053	General
2-	Scattered Tree	vriv0803	Endangered	1	no	0.200	0.070	0.070	0.140		0.012	General
3-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.031	0.140		0.005	General
4-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.024	0.140		0.004	General
5-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.020	0.140		0.003	General
6-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.030	0.660		0.007	General
7-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.030	0.660		0.007	General
8-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.031	0.535		0.007	General
9-	Scattered Tree	vriv0803	Endangered	0	no	0.200	0.031	0.031	0.140		0.005	General

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This is not applicable in the Intermediate Assessment Pathway.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

APPENDIX 4 – AVAILABLE NATIVE VEGETATION CREDITS

Report of available native vegetation credits

This report lists native vegetation credits available to purchase through the Native Vegetation Credit Register.

This report is **not evidence** that an offset has been secured. An offset is only secured when the units have been purchased and allocated to a permit or other approval and an allocated credit extract is provided by the Native Vegetation Credit Register.

Date and time: 08/04/2023 03:36

Report ID: 18461

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
0.105	0.292	1	CMA	Goulburn Broken
			or LGA	Greater Shepparton City

Details of available native vegetation credits on 08 April 2023 03:36

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
BBA-1145	1.047	53	Goulburn Broken	Mitchell Shire	No	Yes	No	Ethos
BBA-2865	0.285	143	Goulburn Broken	Greater Shepparton City	Yes	Yes	No	VegLink
VC_CFL-2355_03	12.271	96	Goulburn Broken	Greater Shepparton City	Yes	Yes	No	VegLink
VC_CFL-2865_02	0.199	126	Goulburn Broken	Greater Shepparton City	Yes	Yes	No	VegLink
VC_CFL-3790_01	6.382	73	Goulburn Broken	Campaspe Shire	Yes	Yes	No	VegLink

These sites meet your requirements using alternative arrangements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
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There are no sites listed in the Native Vegetation Credit Register that meet your offset requirements when applying the alternative arrangements as listed in section 11.2 of the Guidelines for the removal, destruction or lopping of native vegetation.

These potential sites are not yet available, land owners may finalise them once a buyer is confirmed.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3701_01	10.574	18	Goulburn Broken, North Central	Greater Bendigo City	Yes	Yes	No	Bio Offsets
VC_CFL-3747_01	11.546	332	Goulburn Broken	Mansfield Shire	Yes	Yes	No	VegLink

LT - Large Trees

CMA - Catchment Management Authority

LGA - Municipal District or Local Government Authority

Next steps

If applying for approval to remove native vegetation

Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation

Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@delwp.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not available
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

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For more information contact the DELWP Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au

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